

or partly-cloudy day. On August 16, at Orca, I observed snow-flakes flying. Little or no systematic attention is given to gardening in the Sound. At Orca a small garden of radishes, turnips, and like root crops had been planted, but the yield was miserably poor. At Kadiak the gardens in the early part of July were in a very flourishing condition; potatoes and other vegetables had a splendid growth. Kadiak Island and the other islands of that group were covered waist deep with luxuriant grasses and flowers of many varieties. The traveler is struck with amazement at the floral wealth of that country, which, though comparatively treeless, offers thousands of miles of pasture unsurpassed by any State in the Union. The plateaus of Cooks Inlet, too, were covered with long, rich grasses, many kinds of which make excellent food for cattle. At Kenai, Kussiloff, Ninilchek, Anchor Point, and Homer, all on the east side of the Inlet, gardens had been planted, and at each place the yield was good, but was said to be poorer than usual, on account of the unfavorable weather during the latter part of the summer. At Kenai and Ninilchek I saw cattle which had probably never tasted grain; yet they were fat and healthy.

The woods and meadows of that country abound with berries of many varieties, all having an excellent flavor. Fuel, both coal and wood, can be had without asking, and fish and game are abundant. The soil is easily cleared, yields quickly and bountifully, with a minimum amount of labor, and there are few or no harmful vegetable insects. During a stay of several weeks in the Inlet this past summer I did not once observe a higher barometer reading than 29.92 inches, while outside the Inlet I frequently observed readings of 30.00 and higher. The winds were either southwest or northeast, up or down the Inlet. The few opportunities I had for observing the movement of cirrus clouds showed them as coming from the southwest.

The chief hindrance to the early and thorough settlement of that country appears to be its great distance from markets, its isolation during a large part of the year, and the mosquitoes and sand flies during the summer months; mosquitoes are a pest beyond description. One who has never been in the country can form no idea of the annoyance they cause,

both night and day. Of course, with the clearing of the land this pest would disappear to a great extent.

At Tyoonok and Ladds, on the west side, gardening is more extensively engaged in than at any other point in the Inlet. It was said that usually the potato crop is ripe by the 4th of July, and that it yields well. This year the crop was not of eatable size by the first of August, and did not promise to be a good one. Rains and cloudy weather prevailed throughout July and August, and frequently the days were raw and cold.

At Coal Harbor, on Unga Island, about three hundred miles southwest of Kadiak, the voluntary observer's report for August showed 2.25 inches of rainfall, with 3 clear or partly cloudy days, and 28 cloudy and rainy days. The range of temperature was from 43° to 60°. For September the same observer reported 1.02 inch of rainfall, with 7 clear, 8 partly cloudy, and 15 cloudy and rainy days. Maximum temperature, 66° on the 12th; minimum, 34° on the 27th and 28th. Records from that station for previous months have not been received.

The only meteorological records received from the interior were those from Holy Cross Mission (Kosereffsky) on the Yukon. At that place 33 inches of snow lay upon the ground at the close of April. In May the total precipitation was 0.20 inch, with 5 clear, 16 partly cloudy, and 10 cloudy and rainy days. The highest temperature for the month was 58° on the 28th; the lowest, 15° on the 9th. For June the rainfall was 2.09 inches, with 8 clear, 14 partly cloudy, and 8 cloudy and rainy days. Maximum temperature, 76° on the 11th; minimum, 53° on the 3d, with average maximum and minimum of 67° and 45°, respectively. During July 3.34 inches of rain fell. There were 9 clear, 7 partly cloudy, and 15 cloudy or rainy days. Highest temperature, 80° on the 15th; lowest, 40° on the 29th. Average maximum, 65°; minimum, 48°. For August the record gives 2.96 inches of rainfall, with 1 clear, 8 partly cloudy, and 22 cloudy or rainy days. Maximum temperature, 68° on the 22d; minimum, 37° on the 7th and 30th, with averages of 61° and 47° respectively. For September 2.43 inches of rain were reported. Clear days, 3; partly cloudy, 11; cloudy, 16. The first snow of the season fell on the 21st. Maximum temperature for the month, 60° on the 1st; minimum, 25° on the 23d and 24th.

NOTES BY THE EDITOR.

CAPT. MICHAEL MAHANY.

A large majority of the observers and officials of the Weather Bureau will, with regret, learn of the death of Captain Mahany at Washington, on February 3, 1899. For many years during the existence of the school of instruction in signaling and meteorology, at Fort Myer (formerly Fort Whipple), Va., Captain Mahany was the first sergeant, and as such, came into intimate daily contact with every member of the successive classes under instruction. His special attention was given to the care of the men, and their quarters and their instruction in military drill and signaling. He was emphatically and naturally a soldier, and was an excellent drillmaster; although a strict disciplinarian, he was thoroughly faithful to the best interests of those entrusted to his care, and no superior officer ever thought of replacing him by another. When the meteorological, was separated from the military, service, Captain Mahany cast his lot in with the former, and when Professor Moore was appointed Chief of the Weather Bureau, he soon showed his appreciation of the merits of his former drillmaster by recommending him for appointment to the very responsible position of Captain of the Watch, which position he filled with marked acceptability.

He will be sadly missed by every one. He was a prominent member of "The Old Guard," and was buried at Arlington with military honors.

REDUCTION TO STANDARD GRAVITY.

In the MONTHLY WEATHER REVIEW for July, page 314, we have explained the process by which we pass from crude barometric readings at any station to the true atmospheric pressure expressed either in inches, as the height of a column of mercury or, still better, in pounds to the square inch, as pressures are more appropriately measured. One step in this process consists in applying the reduction to standard gravity. Now, the reduction to standard temperature has been acceded to and practiced for the past sixty years; but the reduction to standard gravity has been applied only in special cases, and its general application has been delayed until there could be a concert of action among all nations. Its importance and magnitude has been recognized ever since Laplace published his *Mécanique Céleste*. The international congresses of Vienna, 1873; Rome, 1878; Munich, 1891; as well as the Permanent International Meteorological Committee, have

expressed themselves in no uncertain terms to the effect that, for general meteorological purposes, the reduction to standard gravity is imperative, and that it should be uniformly adopted by all national services and not later than January 1, 1901. In fact, the Polar Conference had already urged this step in 1884 as imperative even at that time, and the Chief Signal Officer, General Hazen, acting promptly upon this request, introduced this correction with the monthly constants for January, 1885, and continued it, in connection with Ferrel's reduction to sea level, on August 1, 1886; but, on January 1, 1888, this improvement was abandoned in order to await the general action of all national services. The recent extension of the service of the Weather Bureau so that our daily weather maps now comprehend the region from latitude 10° to 55° north, brings the importance of the gravity question into great prominence, and by recent instructions, No. 92, dated October 19, the correction will be applied to all mercurial barometers of the Weather Bureau on and after January 1, 1899. The correction will be applied at the same time with those for temperature and other instrumental errors, thus giving first the correct pressure in standard inches of mercury for the locality of the barometer. This local pressure is then reduced to sea level or to any other desired altitude, and the new pressures thus obtained will also be expressed in terms of the recognized international standards.

INSTRUCTIONS No. 92, 1898.

Owing to the recent extensions of the Weather Bureau in the West Indies and along the South American coast, the whole territory now reporting barometric pressures embraces a wide range of latitude, and the barometric readings corrected for temperature and instrumental error only, at the extremes, are widely discordant, owing to variations in the force of gravity with latitude. Therefore, on and after January 1, 1899, the appropriate correction for gravity will be applied to all barometric readings. This correction is nearly constant at any one station, and is given in Table II, page 66 of Circular F, Instrument Room. The gravity correction to be used at a station will be incorporated with the correction for instrumental error and capillarity, and a correction card giving the appropriate correction for each instrument will be furnished by the Instrument Division.

The following example will elucidate the complete correction of the barometric reading:

Attached thermometer 76.5° ; observed barometer reading.....	30.287
Correction for temperature.....	-0.131
Correction for gravity, instrumental error, and capillarity.....	-0.066
Total correction.....	-0.197
Corrected reading.....	30.090

The total correction, ascertained as shown above, will be entered on Form No. 1001—Met'l in the column in which the correction for temperature has been recorded heretofore. Observers may find it convenient to compute a small station table, by combining once for all the gravity and instrumental error corrections with those for temperature, thus giving the total correction for the ordinary temperatures and pressure that prevail at their stations. A new table must be prepared, however, whenever a new correction for instrumental error is employed.

The corrected reading, derived as above, is a standard measure of atmospheric pressure, and is perfectly comparable with similarly corrected readings made at any place the world over.

It takes a long time to overcome the conservatism of the practical world. Men are so accustomed to think in the terms taught them in childhood that even after they have long since perceived that those terms have acquired a new significance and ought to be expressed by new words, or new standards, they still hold on to the old ones.

They may know that the barometer is affected by the temperature of its scale and its mercury, and that both the atmospheric pressure and the weight of the column of mercury depend upon the downward pull of the force of gravity, but they may be slow to take the trouble to make the necessary corrections and allowances. Exact meteorology is now

engaged in studying the atmosphere as a whole and demands that atmospheric pressure should be everywhere measured by the same standard and not by one that varies with the temperature or the latitude. There was a time when every city and country could have its own standard foot, pound, and bushel, but this confusion is now largely abolished in commercial matters and must, also, be abolished in science. We must measure pressure in some uniform standard unit, such as the weight of a pound of mercury, or the height of a column of mercury, under standard gravity. The pressure, per square inch, that will hold up fifteen pounds of mercury under the standard gravity that prevails under 45° of latitude and sea level, will not hold up so much mercury when the attraction of gravitation upon the mercury increases, as it does do as we go northward toward the pole. The reduction to standard gravity is simply an effort to convert our measurements of atmospheric pressure into one common unit so that they will be strictly comparable among themselves all over the world.

THE PRACTICAL SIDE OF WEATHER BUREAU WORK.

The observers in charge of Weather Bureau stations are expected to be, not merely faithful observers and studious meteorologists, but also eminently practical men. That is to say, they must know when, where, and how to apply their knowledge to the best interests of the community around them, and that community consists not merely of the citizens of the city or town in which the station is located, but also includes all the country tributary thereto. We have not yet learned that any other government weather bureau has called upon the merchants or citizens to form local meteorological committees to advise with the local observers as to their mutual interests; but this is always done by the United States Weather Bureau, and has been one of the most important means of securing the appreciative support of the people. We are led to these remarks by a paragraph in the recent annual report of the Chamber of Commerce of Chattanooga, commenting upon the work of our observer in charge, Mr. Lewis M. Pindell. Of course, this report is but one of hundreds that are made from time to time by every local committee on meteorology. If similar committees were established in other countries, their respective weather services would, perhaps, profit thereby as the United States Weather Bureau has done.

THE WEATHER BUREAU AND THE LIBRARIES.

Although the publications of the Climate and Crop sections are widely distributed in their respective States, yet it has always been difficult to secure sets of them for preservation in libraries outside of the States. In order to remedy this difficulty, the Chief of the Weather Bureau has directed that complete sets of all the monthly reports of sections be deposited with the larger libraries of the United States, and the special meteorological libraries of foreign countries. The list thus far agreed upon is as follows:

- The Library of Congress, Washington, D. C.
- The Free Public Library, San Francisco, Cal.
- The Public Library, Chicago, Ill.
- The Public Library, Boston, Mass.
- The Public Library, St. Louis, Mo.
- The Astor Branch of the Public Library, New York, N. Y.
- The Meteorological Office, Toronto, Canada.
- The K. P. Met. Institut, 6 Schinkelplatz, Berlin, W.
- The Deutsche Seewarte, Hamburg, Germany.
- The Centralanstalt f. Met., Vienna, Austria.
- The Central Physical Observatory, St. Petersburg, Russia.